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WASHINGTON, D.C. 20268-0001

RATE ADJUSTMENT DUE TO EXTRAORDINARY OR EXCEPTIONAL CIRCUMSTANCES	Docket No. R2013-11

RESPONSES OF THE UNITED STATES POSTAL SERVICE TO QUESTIONS 1-8 OF PRESIDING OFFICER'S INFORMATION REQUEST NO. 2
(October 30, 2013)

The United States Postal Service hereby provides its responses to Questions 1-8 of Presiding Officer's Information Request No. 2, dated October 23, 2013. Answers were sought no later than today. Each question is stated verbatim and is followed by the response. The responses to Questions 1-8 are sponsored by Thomas Thress. A response to Question 9 will be filed shortly.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

1. On page 4 of the July 1 Narrative the statement is made that "[i]n all cases, the overriding goal of the Postal Service's econometric work is to produce the most accurate volume forecasts possible."

a. Please explain to what degree is an accurate own-price elasticity of demand necessary to produce the most accurate forecasts possible?

b. Please explain to what degree does the analysis described in the July 1 Narrative use any forward looking data or input (as opposed to historical data or input) to produce volume forecasts other than that provided by Global Insight?

c. Please explain whether the analysis described in the July 1 Narrative employs any Bayesian statistical techniques to produce volume forecasts? If not, why not?

d. Are the demand equations described in the July 1 Narrative constrained to have non-positive own price elasticities? If so, please explain why such constraints are used.

e. Please explain how the goal quoted in the heading to this question impacts the choice of lag variables in any given year in the demand equations, including those for Single-Piece First-Class Letter Mail and workshared First-Class Letter Mail.

f. Please confirm whether the lag variables anticipate differences between consumer behavior in one model year, but not in the subsequent model year. If confirmed, please explain in detail the reasons that consumer behavior and business behavior is expected to react differently in one model year, but not in the subsequent model year.

RESPONSE

a. One of the primary purposes for which the Postal Service uses volume forecasts is to analyze the expected impact of alternate scenarios on mail volumes (and revenues and costs). One common set of alternate scenarios of particular interest to the Postal Service is to analyze the potential impact of alternate Postal prices on mail volumes (and revenues and costs). Obviously, accurately modeling the impact of changes to Postal prices on mail volumes requires an estimate of how mailers are likely to react to changes in Postal prices – i.e., "own-price elasticity" – that is as accurate as possible.

b. The July 1 Narrative deals only with the Postal Service's econometric demand equations. Obviously, one cannot develop a demand equation – econometric or otherwise – to be used in making volume forecasts which incorporates forecasted volume. This would be circular. As such, it is not literally possible to incorporate any "forward looking data or input" directly into the Postal Service's econometric demand equations.

That said, it is the case that an important analytical tool in analyzing, developing, and understanding the econometric demand equations to be used in making volume forecasts is to look at how well such equations would have forecasted the recent past. The econometric output associated with the demand equations filed with the Postal Regulatory Commission both on January 22, 2013, as well as for the present case, includes a Recursive Residual analysis. This involves estimating the Postal Service's demand equation models over earlier time periods, making one-quarter-ahead forecasts, and comparing these to actual historical volumes. This Recursive Residual analysis is instrumental, for example, in helping to identify starting dates for changes in historical trends and for identifying possible starting dates for Intervention variables.

c. The Postal Service does not use any formal Bayesian statistical techniques to produce or evaluate its volume forecasts. The Postal Service's forecasting needs are more adequately satisfied using traditional deterministic statistical techniques. The introduction of non-econometric judgment does, however, play an important role in the development of the Postal Service's volume forecasts.

d. No.

e. I do not understand what you mean by "lag variables" here. As such, I am not sure how to respond to this question beyond simply emphasizing that every effort is made to understand and model the demand for mail volume, including the timing of how mailers respond to changes in outside factors, as accurately as possible in order to produce the best possible volume forecasts.

f. I do not understand this question. The econometric demand equations filed with the Commission on January 22, 2013, as well as those used in the present case, are intended to model the demand for mail over the full sample period over which they are estimated, and serve as the basis for understanding and predicting the demand for mail volume in the future.

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2. Please refer to pages 4-5 of the July 1 Narrative:

a. Please confirm whether it would be accurate to say that it is better to account for cross price elasticities with (essentially) non-price approaches such as "either simple dummy variables or non-linear Intervention analysis." (July 1 Narrative, at 5.) If not confirmed, please explain.

b. Please refer to all demand equations where the analysis substitutes a non-price variable for a cross price variable. For each such demand equation, please state whether such substitution sharpens the own-price elasticity in that demand equation as well as, or better than, a cross price variable would. Please describe why this would be the case.

RESPONSE

a. Not confirmed. My statement at pages 4-5 of the July 1 Narrative is intended to explain that simple cross-price variables, particularly those which assume a constant cross-price elasticity over the entire sample period, are frequently inadequate at measuring one-time changes to the unique relationship between two particular mail categories. In such cases, it is preferable to model the unique impact of such events via unique explanatory variables.

b. The following demand equations used in the analysis underlying my Further Statement in this case include the following "non-price" variables to model possible price substitution between mail categories.

- First-Class Single-Piece Letters, Cards, and Flats

The First-Class single-piece mail equation includes dummy variables tied to the following changes to rates and/or mail regulations: R90-1, MC95-1, and R2006-1. In the first two of these cases, the referenced case changed the price relationship between First-Class single-piece and workshared mail in a way that is inadequately modeled by including a simple cross-price measure for First-Class workshared mail within the First-Class single-piece mail equation. In the case of R2006-1, new shape-based prices were introduced which may have affected the mix of First-Class single-piece mail by shape. This also coincided with the introduction of the Forever Stamp. It is possible that the introduction of the Forever Stamp affected either the demand for mail or the Postal Service's estimate of mail in unique ways.

- First-Class Workshared Letters, Cards, and Flats

The First-Class workshared mail equation includes a dummy variable equal to one starting with the implementation of R2006-1 rates in 2007Q3. As with First-Class single-piece mail, the

implementation of R2006-1 rates included the introduction of shape-based prices for First-Class workshared mail.

- Standard Regular Mail

The impact of classification reform, MC95-1, on Standard Regular mail volume is modeled via a simple dummy variable equal to one in 1996Q4, the quarter in which MC95-1 was implemented, zero elsewhere, and a non-linear intervention variable starting in 1997Q1. The rate changes within Standard Regular Mail were impacted in such a way in MC95-1 that a simple fixed-weight price index may be inadequate to fully capture the effect of such price changes on Standard Regular Mail volume. The use of a non-linear intervention variable to capture these effects reflects the fact that mailers may not have been able to react to these changes right away.

The impact of R97-1 on Standard Regular mail volume is modeled via a non-linear intervention variable starting in 1999Q3. This variable captures the migration of mail from Standard ECR to Standard Regular as a result of the implementation of R97-1 rates, which priced Standard Regular Automation 5-digit letters below Standard ECR Basic letters. The use of a non-linear intervention variable to capture these effects reflects the fact that mailers may not have been able to react to these changes right away.

The Standard Regular Mail demand equation also includes simple dummy variables tied to the implementation of R2001-1 and R2006-1. The former of these is included to capture what otherwise appears to be a somewhat anomalous reaction of Standard Mail volume to this particular rate change. The latter of these is included to capture possible migration from Standard ECR to Standard Regular due to the elimination of Automation letter discounts for Standard ECR Mail as well as some shifts from Standard Regular flats to letters because of differences in the rate increases associated with these two types of mail in this case.

- Standard ECR Mail

The Standard ECR Mail demand equation includes two non-linear intervention variables, the timing of which are tied to the implementation of rate changes which priced some Standard ECR mail below the price of some Standard Regular mail: R97-1 and R2006-1. The former of these is modeled via a simple dummy variable equal to one in 1999Q2, the quarter in which R97-1 was implemented, zero elsewhere, and a non-linear intervention variable starting in 1999Q3. The latter is modeled via a non-linear intervention variable starting in 2007Q4 (the first full quarter of R2006-1 rates). Both of these variables are included to model the impact of rate

changes which could have been expected to shift some Standard ECR letter mail into the Standard Regular subclass.

- Standard Nonprofit Mail

The impact of classification reform, MC96-2, on Standard Nonprofit mail volume is modeled via a non-linear intervention variable starting in 1997Q1. The Standard Nonprofit Mail demand equation also includes a simple dummy variable tied to the implementation of R2006-1. Both of these variables are included the model the impact of rate changes which could have been expected to shift some Standard Nonprofit ECR letter mail into the Standard Nonprofit subclass.

- Standard Nonprofit ECR Mail

The Standard Nonprofit ECR Mail demand equation includes a non-linear intervention variable starting in 2007Q3, the quarter in which R2006-1 rates were implemented.

- Return Receipts

The demand equation for Return Receipts includes a dummy variable equal to one starting with the implementation of R2006-1 rates in 2007Q3.

- Stamped Envelopes

The Stamped Envelopes equation includes a dummy variable equal to one starting with the implementation of R2006-1 rates in 2007Q3.

In each of these latter two cases, this dummy variable is included to capture what otherwise appears to be a somewhat anomalous reaction of these Special Services to this particular rate change. In the case of Stamped Envelopes, this could have to do with the introduction of Forever Stamps.

In all of these cases, the specification used here was chosen on the basis of considerable analysis and experimentation, in which I have participated for the past twenty-one years. In many cases, the specifications used here were compared explicitly to alternate models which relied solely on simple cross-price measures. In all such cases, the present specification produced more stable, reliable, and robust statistical estimates of mailers' responses to changes in Postal prices.

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3. The July 1 Narrative at page 8 states that the recent recession "had a larger than expected negative impact on many categories of mail volume." Please list in order of importance each category of mail that consists of the "many categories" referred to in this quote and the corresponding associated volume impact.

RESPONSE

The impact of the Great Recession on mail volume was quantified in the spreadsheet ExigentImpact.xlsx which was filed with USPS-R2010-4R-10 in the present case. Columns V and W on sheet 'Volume' of that spreadsheet quantify the "larger than expected" impact of the Great Recession beyond what would have been expected based on the historical relationship between mail volume and the macro-economy. The "expected" impact of the Great Recession on mail volume, based on the historical relationship between mail volume and macro-economy, can be found in columns D through G of the same sheet.

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4. Please confirm that both the Trend and Intervention Analysis approaches to Internet diversion presented in this case and in the econometric demand models submitted January 22, 2013, do not capture the price impact of Internet diversion, but only the non-price and price impact of diversion combined. If not confirmed, please explain how the price impact of Internet diversion is captured by either or both of these approaches.

RESPONSE

To the extent "the Trend and Intervention Analysis approaches to Internet diversion … capture … the non-price **and price impact** of diversion combined" (emphasis added) as you state in your question, one could argue that "the price impact of Internet diversion" is, in fact, captured within this approach to Internet diversion. To the extent that Postal prices may affect the level of Internet diversion, these effects would be implicit within the own-price elasticity estimates in my models.

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5. The July 1 Narrative at page 16 states that for the First-Class Single-Piece letters "[t]he diversion rate associated with this first round of diversion is estimated econometrically at an annual rate of -3.8%." The "second trend is estimated to have increased the annual diversion rate by an additional −1.0%, bring total diversion to an annual rate of −4.7%". And the "third trend is estimated to have more than doubled the prior diversion rate, leading to an overall annual diversion rate of -9.7%".

a. Please confirm whether, based on the statements in the heading of this question, it would be accurate to state that the first diversion rate trend leads to an average annual change of -3.8% in Single-Piece First-Class Letter Mail volume, the second diversion trend leads to a change of -4.7%, and the third diversion trend leads to a change of -9.7%. If not confirmed, please explain.

b. Please clarify whether the annual diversion rate is applied to First-Class Single-Piece letters and cards, to Single-Piece Letters Flats and Parcels, or to both?

c. Please explain to what degree each of these three percentages is affected by use of "filtered macroeconomic data" as described on pages 7-8 of the July 1 Narrative.

d. Are the trend lines for diversion for Single-Piece First-Class Letter Mail estimated using the "transfer function" noted in the discussion of Intervention Analysis on page 9 of the July 1 Narrative?

e. If your response to (d) is answered affirmatively, please provide the computer output which shows that for Single-Piece First-Class Letter Mail, the trend reverts to a linear trend, not a step function, pulse function or non-linear trend. If your response to part (d) is answered negatively, please explain the reason(s) for not using the transfer function and Intervention Analysis for Single-Piece First-Class Letter Mail.

RESPONSE

a. – b. The discussion referenced in the July 1 Narrative was intended to be merely illustrative of the general technique used in my work. The specific example referenced here was inadvertently held over from the Narrative Description from earlier years and does not apply to any equations which were filed with the Postal Regulatory Commission in January, 2013.

Your response to a. is confirmed with respect to the equation referenced here, which was filed with the Postal Regulatory Commission in January, 2012. The dependent variable for that equation was First-Class single-piece letters, flats, and parcels, which is the volume to which these diversion rates would have applied.

c. Any econometric estimate will be dependent on the specific econometric model estimated. Beyond that, I do not understand what inferences you might be drawing from my discussion of filtered macro data on pages 7-8 of the Narrative.

d. The process of understanding the diversion of First-Class single-piece mail volume over time and how best to model involved a number of experiments over the course of several years. These included experiments using the generalized "transfer function" approach to Intervention Analysis. Over the course of these experiments, it became clear that First-Class single-piece letters volume was best modeled relying solely on linear trend variables starting at various dates and that expanding to include the full range of possible intervention outcomes did not add any new or improved information to our understanding of the demand First-Class single-piece letters, cards, and flats volumes.

e. I have attached econometric results from three alternate models for First-Class single-piece letters, cards, and flats.

The first equation includes fully-specified transfer functions that were described in the July 1 Narrative. That is, freely estimated pulse, step, and trend functions are estimated for each of three Intervention variables that are estimated starting at the same time as the diversion trend variables are estimated in the baseline First-Class single-piece letters, cards, and flats equation used in this case.

The first problem that is evident in these results is that the standard errors associated with the non-linear parameters are not estimated but are reported here as "NA". In addition, the estimated own-price elasticity associated with this specification is implausibly small at -0.026 (t-statistic of -6.737, although, as suggested by the previous sentence, the standard errors from this equation are somewhat unreliable).

For the first intervention variable, which starts in 1993Q3, the pulse and step values are minimal (0.030, 0.015), and the resulting intervention variable is essentially a long-run trend with a coefficient of -0.0098. This compares to a baseline trend value here of -0.0099.

For the second intervention variable, the pulse and step values are again minimal (0.057, 0.012) and the resulting intervention variable is essentially a long-run trend with a coefficient of −0.0007 (versus a baseline trend value of -0.0011).

The third intervention variable has a pulse value of 0.483, a lag pulse value of 1.048, and a long-run step value of -0.178. This creates a variable which starts out very strongly (0.87 in 2007Q4) and attenuates toward a long-run step value of -0.178. The rate of attenuation here is extremely slow (Delta is very close to one: 0.98). The long-run trend is somewhat offsetting at 0.0036. Putting all of this together, this variable shifts from a value of 0.87 in 2007Q4 to 0.61 by

2012Q4, a decline of 0.26. In contrast, the baseline trend over this time period changes from −0.013 in 2007Q4 to -0.268 in 2012Q4, a decline of 0.255. In other words, setting aside the anomalous initial value, the change in the Intervention variable here closely mirrors the change in the intervention variable from the baseline equation used in this case.

Overall, this equation produces a mean-squared error of 0.000591, more than double the mean-squared error from the equation used in this case (0.000261). The mean-squared error over the most recent five years (0.001092) is three times greater than the five-year MSE in the baseline case (0.000353).

The results of this first experiment reinforce an econometric reality that has become apparent to me through my work with non-linear intervention variables over the years. As a general rule, it is possible to estimate either non-linear pulse and step functions or long-run trends, but not both.

The second and third experiments presented below compare these two alternatives. The first of these attempts to freely estimate step and pulse functions associated with these three intervention time periods with no long-run trends. The final equation freely estimates long-run trend coefficients without step and pulse functions. The latter of these is the baseline equation for First-Class single-piece letters, cards, and flats, which was used in the present case.

For the experiment with step and pulse functions and no trends, the estimated standard errors of the equation as well as the own-price elasticity were again problematic with the estimated own-price elasticity for this equation being -0.017 (t-statistic of -0.287 to the extent that one can trust the t-statistic here). This compares to a much more reasonable own-price elasticity of -0.157 (t-statistic of -2.268) in the equation used in this case. The mean-squared error of the equation is also better in the equation with trends (which was used in this case) than in the equation with step and pulse functions, 0.000261 versus 0.000277.

In the equation with step and pulse functions, the first intervention attenuates to a long-run step value of -1.0, which is the largest allowable step level (in absolute value). The rate of attenuation for this intervention is so close to one (0.987) that it ends up essentially mirroring a trend, having only reached 63 percent of its full value by the end of the sample period. This intervention variable has a value of -0.62 in 2012Q4. In contrast, the first intervention trend in the next equation reaches an intervention value of -0.76 by 2012Q4.

The second pulse-step intervention attenuates to a more reasonable long-run value of −0.268, but again, does so at such a slow rate (delta value of 0.985) as to essentially mirror a

trend, reaching less than half of its long-run value (-0.129) by the end of the equation sample period.

The final pulse-step intervention exhibits the strange behavior from the first equation of jumping up strongly positive (0.598 in 2007Q4) before attenuating down – again, very slowly (delta of 0.983) toward a negative long-run step value.

To the extent that the three interventions in this equation all end up essentially behaving as time trends within the sample period here, it is no real surprise that replacing them all with actual trends improves the demand equation.

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Mail Category: First-Class Single-Piece Letters, Cards, & Flats
Fully Specified Intervention Transfer Models
Sample Period: 1983:1 TO 2013:3

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	1.603269	0.780982	2.052887
EMPLOY_HPT	1.041952	0.613664	1.697918
D_R90	-0.043246	0.025740	-1.680113
MC95	0.050865	0.029162	1.744240
R2006PHOP	-0.022917	0.013837	-1.656278
D_R07	-0.881907	0.242467	-3.637219
PX1SP_LCF	-0.018302	0.002682	-6.823496
lag 1	-0.007076	0.001200	-5.897687
lag 2	-0.000062	0.000015	-4.157081
lag 3	-0.000058	0.000015	-3.848900
lag 4	-0.000059	0.000015	-3.906483

Long-Run Price Elasticities

	PX1SP_LCF
Current	-0.018302
Lag 1	-0.007076
Lag 2	-0.000062
Lag 3	-0.000058
Lag 4	-0.000059
Sum	-0.025557
T-Statistic on Sum	-6.736787

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Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.029858	NA	NA
W1: Lag Pulse	0.017823	NA	NA
W2: Long-Run Step	0.015340	NA	NA
W3: Long-Run Trend	-0.009844	NA	NA
Delta	0.308215	NA	NA

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1993			0.029858	0.023319
1994	0.001146	-0.012498	-0.023513	-0.033718
1995	-0.043673	-0.053551	-0.063405	-0.073252
1996	-0.083096	-0.092940	-0.102784	-0.112628
1997	-0.122471	-0.132315	-0.142159	-0.152002
1998	-0.161846	-0.171690	-0.181533	-0.191377
1999	-0.201221	-0.211064	-0.220908	-0.230752
2000	-0.240595	-0.250439	-0.260283	-0.270126
2001	-0.279970	-0.289814	-0.299657	-0.309501
2002	-0.319345	-0.329188	-0.339032	-0.348876
2003	-0.358719	-0.368563	-0.378407	-0.388250
2004	-0.398094	-0.407938	-0.417781	-0.427625
2005	-0.437469	-0.447312	-0.457156	-0.467000
2006	-0.476843	-0.486687	-0.496531	-0.506374
2007	-0.516218	-0.526062	-0.535905	-0.545749
2008	-0.555593	-0.565436	-0.575280	-0.585124
2009	-0.594967	-0.604811	-0.614655	-0.624499
2010	-0.634342	-0.644186	-0.654030	-0.663873
2011	-0.673717	-0.683561	-0.693404	-0.703248
2012	-0.713092	-0.722935	-0.732779	-0.742623
2013	-0.752466	-0.762310	-0.772154	

Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.057110	NA	NA
W1: Lag Pulse	0.030103	NA	NA
W2: Long-Run Step	0.012162	NA	NA
W3: Long-Run Trend	-0.000688	NA	NA
Delta	2.59E-07	NA	NA

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2002			0.057110	0.041577
2003	0.010786	0.010099	0.009411	0.008723
2004	0.008036	0.007348	0.006660	0.005972
2005	0.005285	0.004597	0.003909	0.003222
2006	0.002534	0.001846	0.001159	0.000471
2007	-0.000217	-0.000905	-0.001592	-0.002280
2008	-0.002968	-0.003655	-0.004343	-0.005031
2009	-0.005718	-0.006406	-0.007094	-0.007782
2010	-0.008469	-0.009157	-0.009845	-0.010532
2011	-0.011220	-0.011908	-0.012596	-0.013283
2012	-0.013971	-0.014659	-0.015346	-0.016034
2013	-0.016722	-0.017409	-0.018097	

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Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.482540	NA	NA
W1: Lag Pulse	1.048105	NA	NA
W2: Long-Run Step	-0.177977	NA	NA
W3: Long-Run Trend	0.003595	NA	NA
Delta	0.980858	NA	NA

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2007			0.482540	0.873723
2008	0.857256	0.841172	0.825466	0.810129
2009	0.795154	0.780534	0.766264	0.752335
2010	0.738742	0.725477	0.712536	0.699911
2011	0.687596	0.675586	0.663875	0.652457
2012	0.641326	0.630477	0.619904	0.609603
2013	0.599568	0.589793	0.580275	

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Seasonal Variables

	Coefficients	Std. Error	T-Ratio
JAN15S	-2.180320	0.925183	-2.356636
FEB15S	-0.085192	0.496024	-0.171751
MAR_MAY15S	-1.141313	0.679101	-1.680622
JUN15S	-0.744362	0.510664	-1.457636
JUL15S	-2.687297	1.523102	-1.764357
SEP15S	-1.033024	0.608002	-1.699046
OCT15S	-0.880418	0.911528	-0.965870
NOV15S	-1.399994	0.692162	-2.022638
DEC15S	-0.397935	0.601798	-0.661243
D_FS_Q1	0.043905	0.011050	3.973304

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.101533	-0.003762	-0.021612	-0.076832
1984	0.101101	0.005214	-0.029387	-0.074252
1985	0.098003	0.006360	-0.033045	-0.073066
1986	0.095337	0.011102	-0.036551	-0.071948
1987	0.091926	0.016081	-0.039456	-0.070899
1988	0.087769	0.026327	-0.043554	-0.069009
1989	0.077221	0.032428	-0.044561	-0.068166
1990	0.070829	0.038349	-0.045060	-0.067393
1991	0.063693	0.044504	-0.044957	-0.066689
1992	0.056893	0.053065	-0.043505	-0.065487
1993	0.044305	0.057891	-0.041040	-0.064990
1994	0.038517	0.060660	-0.038531	-0.064561
1995	0.033065	0.062582	-0.035421	-0.064202
1996	0.027951	0.065515	-0.028806	-0.064032
1997	0.019191	0.063268	-0.022482	-0.064565
1998	0.016003	0.061804	-0.016966	-0.065510
1999	0.013609	0.059493	-0.010849	-0.066867
2000	0.087923	-0.003135	-0.025297	-0.077631
2001	0.087923	-0.008202	-0.025297	-0.077631
2002	0.087923	-0.008202	-0.025297	-0.077631
2003	0.087923	-0.008202	-0.025297	-0.077631
2004	0.087923	-0.003135	-0.025297	-0.077631
2005	0.087923	-0.008202	-0.025297	-0.077631
2006	0.087923	-0.008202	-0.025297	-0.077631
2007	0.087923	-0.008202	-0.025297	-0.077631
2008	0.131828	-0.003135	-0.025297	-0.077631
2009	0.131828	-0.008202	-0.025297	-0.077631
2010	0.131828	-0.008202	-0.025297	-0.077631
2011	0.131828	-0.008202	-0.025297	-0.077631
2012	0.131828	-0.003135	-0.025297	-0.077631
2013	0.131828	-0.008202	-0.025297	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.050203
Mean Square Error	0.000591
Unadjusted Mean Square Error	
Full Sample	0.002032
Last 5 Yrs	0.001092
Last 4 Yrs	0.001062
Last 3 Yrs	0.001237
Last 2 Yrs	0.001382
Last 1 Yr	0.000837
Durbin-Watson	2.285076
R-Square	0.996654
Adj. R-Square	0.995197
Degrees of Freedom	85

SHAPIRO-FRANCIA TEST FOR NORMALITY OF RESIDUALS

Test Statistic	P-Value
0.988	0.321

AUGMENTED DICKEY FULLER TEST FOR STATIONARITY

	Test Statistic	Critical Value
Dependent Variable	0.437	-3.400
Residuals	-1.156	-1.924

Null hypothesis: Variable contains a unit root

For dependent variable, model is AR(4) with constant and time trend
For residuals, model is AR(4) with no constant, no trend

Critical values are calculated for a 5% significance level from 'Lag Order
by Yin-Wong Cheung and Kon S. Lai, Journal of Business & Economic Statisti

Mechanical Net Trends

Forecast Period

	4 Yrs Ago	3 Yrs Ago	2 Yrs Ago	1 Yr Ago	Last 4 Qtrs
Base 5 Yrs Ago	0.986730	1.001246	0.995678	0.993506	0.998394
Base 4 Yrs Ago		1.015977	1.000182	0.995775	1.001331
Base 3 Yrs Ago			0.984633	0.985826	0.996497
Base 2 Yrs Ago				0.987020	1.002482
Base 1 Yr Ago					1.018186

SHILLER K-SQUARED VALUES

PX1SP_LCF	410.400000

RESPONSE OF THOMAS THRESS
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AR-Coefficients

	Coefficient	Std. Error	T-Ratio
Rho-1	0.488205	NA	NA
Rho-2	0.387117	NA	NA

AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.168887	-0.164078	0.091287	-1.797381
2	-0.350021	-0.379452	0.091670	-4.139334
3	0.143604	0.013894	0.092057	0.150926
4	0.142903	0.054928	0.092450	0.594137
5	-0.013706	0.098415	0.092848	1.059959
6	0.001850	0.116094	0.093250	1.244972
7	-0.103883	-0.062273	0.093659	-0.664898
8	0.244776	0.287171	0.094072	3.052675
9	0.093989	0.181636	0.094491	1.922255

Recursive Residuals
(normalized: (Ln(Actual) - Ln(Forecast)) / SE

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.609	-1.279
1988	-0.248	-1.336	-0.418	0.490
1989	-1.198	2.203	0.059	0.050
1990	0.787	2.045	-0.379	0.302
1991	0.990	-1.043	0.019	0.188
1992	-0.750	-0.603	-0.573	0.640
1993	1.569	1.200	0.480	-1.557
1994	-0.447	-0.736	-2.871	-0.360
1995	-0.685	-1.327	-0.993	-1.130
1996	2.054	0.710	0.196	0.234
1997	0.794	1.268	0.676	-0.643
1998	-1.166	0.171	0.545	0.381
1999	-0.777	0.792	1.429	-0.060
2000	-0.063	0.602	-1.036	-0.625
2001	-0.404	-1.039	2.736	-0.118
2002	-2.152	0.466	2.564	-0.769
2003	-1.627	1.191	-0.346	0.180
2004	1.381	0.192	-1.072	-0.048
2005	1.709	-0.421	-1.204	-0.391
2006	-0.883	0.412	0.004	-0.941
2007	0.464	-0.334	0.908	-1.761
2008	1.475	1.159	0.335	-2.816
2009	0.203	0.820	-0.665	0.558
2010	2.655	-2.068	0.400	-0.667
2011	-0.449	-1.048	0.440	-0.583
2012	-0.540	-1.902	-1.063	0.118
2013	0.449	-0.044	2.191	

RESPONSE OF THOMAS THRESS
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Cumulative Sum of One-Quarter-Ahead Residuals

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.609	-1.888
1988	-2.136	-3.471	-3.889	-3.399
1989	-4.597	-2.394	-2.335	-2.285
1990	-1.498	0.547	0.168	0.470
1991	1.459	0.417	0.436	0.624
1992	-0.126	-0.730	-1.303	-0.662
1993	0.907	2.108	2.588	1.031
1994	0.584	-0.151	-3.023	-3.383
1995	-4.068	-5.395	-6.388	-7.518
1996	-5.464	-4.755	-4.558	-4.324
1997	-3.530	-2.261	-1.586	-2.228
1998	-3.394	-3.223	-2.678	-2.297
1999	-3.075	-2.282	-0.853	-0.913
2000	-0.976	-0.374	-1.410	-2.035
2001	-2.439	-3.478	-0.742	-0.860
2002	-3.012	-2.546	0.018	-0.751
2003	-2.378	-1.187	-1.533	-1.353
2004	0.027	0.219	-0.852	-0.901
2005	0.808	0.388	-0.817	-1.207
2006	-2.091	-1.679	-1.675	-2.616
2007	-2.152	-2.486	-1.578	-3.338
2008	-1.864	-0.705	-0.370	-3.186
2009	-2.983	-2.163	-2.828	-2.271
2010	0.385	-1.683	-1.283	-1.950
2011	-2.399	-3.447	-3.007	-3.590
2012	-4.130	-6.033	-7.096	-6.978
2013	-6.529	-6.573	-4.382	

Normalized CUSUM
CUSUM divided by Confidence Level

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.214	-0.469
1988	-0.434	-0.610	-0.612	-0.488
1989	-0.611	-0.298	-0.274	-0.254
1990	-0.159	0.056	0.016	0.044
1991	0.132	0.037	0.037	0.052
1992	-0.010	-0.057	-0.100	-0.050
1993	0.067	0.151	0.182	0.071
1994	0.040	-0.010	-0.197	-0.217
1995	-0.257	-0.335	-0.391	-0.453
1996	-0.325	-0.279	-0.263	-0.247
1997	-0.199	-0.126	-0.087	-0.121
1998	-0.182	-0.171	-0.140	-0.119
1999	-0.158	-0.116	-0.043	-0.045
2000	-0.048	-0.018	-0.068	-0.097
2001	-0.116	-0.163	-0.035	-0.040
2002	-0.138	-0.116	0.001	-0.034
2003	-0.105	-0.052	-0.067	-0.059
2004	0.001	0.009	-0.036	-0.038
2005	0.034	0.016	-0.034	-0.049
2006	-0.085	-0.068	-0.067	-0.104
2007	-0.085	-0.098	-0.062	-0.130
2008	-0.072	-0.027	-0.014	-0.121
2009	-0.112	-0.081	-0.105	-0.084
2010	0.014	-0.062	-0.047	-0.071
2011	-0.087	-0.124	-0.107	-0.128
2012	-0.146	-0.212	-0.248	-0.243
2013	-0.226	-0.227	-0.150	

RESPONSE OF THOMAS THRESS
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Change in Normalized CUSUM

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.214	-0.255
1988	0.036	-0.177	-0.001	0.124
1989	-0.123	0.313	0.024	0.020
1990	0.095	0.214	-0.039	0.028
1991	0.088	-0.096	0.001	0.015
1992	-0.062	-0.047	-0.043	0.050
1993	0.116	0.085	0.031	-0.111
1994	-0.032	-0.050	-0.187	-0.020
1995	-0.040	-0.078	-0.056	-0.062
1996	0.129	0.046	0.015	0.017
1997	0.048	0.073	0.039	-0.034
1998	-0.061	0.011	0.030	0.021
1999	-0.039	0.042	0.073	-0.003
2000	-0.003	0.030	-0.050	-0.029
2001	-0.018	-0.048	0.129	-0.005
2002	-0.098	0.022	0.116	-0.034
2003	-0.072	0.053	-0.015	0.008
2004	0.060	0.008	-0.045	-0.002
2005	0.072	-0.018	-0.050	-0.016
2006	-0.036	0.017	0.001	-0.037
2007	0.019	-0.013	0.036	-0.068
2008	0.058	0.045	0.013	-0.107
2009	0.008	0.031	-0.024	0.021
2010	0.098	-0.076	0.015	-0.024
2011	-0.016	-0.037	0.016	-0.020
2012	-0.018	-0.066	-0.036	0.005
2013	0.017	-0.000	0.076	

REGRESSION RESIDUALS (w/o AR- and ARCH-Corrections)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.016330	0.047004	0.056117	0.033069
1984	0.032632	0.075606	0.053638	0.071505
1985	0.065721	0.069435	0.076047	0.053447
1986	0.065258	0.037445	0.080600	0.054299
1987	0.052378	0.037027	0.066171	0.043797
1988	0.064988	0.033733	0.081576	0.058726
1989	0.026653	0.059226	0.070443	0.039531
1990	0.049019	0.050799	0.069013	0.059439
1991	0.065334	0.047735	0.084420	0.035872
1992	0.003268	0.020055	0.041400	0.051366
1993	0.031525	0.030643	0.034042	0.006691
1994	0.015906	0.023752	0.029752	0.050525
1995	0.016719	0.009932	0.032407	0.006707
1996	0.039216	0.019836	0.025292	0.013794
1997	0.003767	0.015206	0.025608	-0.000712
1998	0.003557	0.004771	0.025425	0.016242
1999	-0.007635	0.016639	0.044340	0.022103
2000	0.004802	0.022107	-0.012049	0.033064
2001	0.003343	-0.000181	0.047000	0.026447
2002	-0.022253	0.015226	0.002139	0.001353
2003	-0.031336	0.008220	-0.003811	0.006517
2004	0.002147	0.004594	-0.017987	0.006936
2005	0.014091	-0.002411	-0.019308	0.003646
2006	-0.000637	0.009338	-0.001654	-0.011874
2007	-0.002539	-0.006011	-0.009598	-0.017981
2008	-0.048671	-0.000386	0.006022	-0.045061
2009	-0.044601	0.000429	-0.028933	-0.007557
2010	0.002586	-0.043956	-0.012400	-0.026671
2011	-0.038529	-0.036988	-0.015027	-0.027868
2012	-0.042811	-0.053401	-0.047364	-0.030548
2013	-0.035343	-0.034050	0.002644	

RESPONSE OF THOMAS THRESS
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REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983			0.026847	-0.012524
1984	-0.005236	0.046873	0.004095	0.016051
1985	0.010047	0.009669	0.016707	-0.010559
1986	0.009726	-0.015105	0.037057	0.000455
1987	-0.005333	-0.009564	0.027817	-0.002842
1988	0.017990	-0.014949	0.039949	0.005842
1989	-0.033597	0.023481	0.031211	-0.017787
1990	0.002450	0.011564	0.025237	0.006082
1991	0.009599	-0.007171	0.035823	-0.023821
1992	-0.046926	0.004573	0.030344	0.023390
1993	-0.009578	-0.004632	0.006878	-0.021791
1994	-0.000539	0.013396	0.011998	0.026806
1995	-0.019465	-0.017789	0.021086	-0.012959
1996	0.023397	-0.001906	0.000427	-0.006232
1997	-0.012758	0.008026	0.016726	-0.019101
1998	-0.006008	0.003310	0.021719	0.001982
1999	-0.025407	0.014079	0.039173	-0.005985
2000	-0.023154	0.011206	-0.024700	0.030388
2001	-0.008134	-0.014612	0.045794	0.003571
2002	-0.053359	0.015852	0.003320	-0.005586
2003	-0.032825	0.022994	0.004306	0.005195
2004	0.000441	0.001024	-0.021061	0.013939
2005	0.017668	-0.011975	-0.023586	0.014006
2006	0.005058	0.008237	-0.005966	-0.014681
2007	0.003898	-0.000175	-0.005681	-0.010968
2008	-0.036177	0.030336	0.025052	-0.047852
2009	-0.024933	0.039648	-0.011877	0.006402
2010	0.017476	-0.042293	0.008058	-0.003602
2011	-0.020708	-0.007853	0.017946	-0.006213
2012	-0.023389	-0.021712	-0.004720	0.013248
2013	-0.002094	-0.004969	0.032949	

RESPONSE OF THOMAS THRESS
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CONTRIBUTIONS TO CHANGE IN
First-Class Single-Piece Letters, Cards, & Flats
VOLUME OVER LAST FIVE YEARS

Volume 5 Years Ago 39194.483

Variable	Percent Change In Variable	Elasticity	Effect of Variable on Volume
Own-Price	2.11%	-0.026	-0.05%
EMPLOY_HPT	-4.90%	1.042	-5.10%
D_R90	0.00%	-0.043	0.00%
MC95	0.00%	0.051	0.00%
R2006PHOP	0.00%	-0.023	0.00%
D_R07	0.00%	-0.882	0.00%
Adult Population			5.63%
Interventions Starting in:			
1993Q3			-17.87%
2002Q3			-1.37%
2007Q3			-22.49%
Seasonality			-0.41%
Other Factors			-0.80%
Mechanical Net Trend			0.998394
Base Volume			24359.600
Total Change in Volume			-37.85%

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Mail Category: First-Class Single-Piece Letters, Cards, & Flats
Intervention variables attenuate to Long-Run Pulse, Step Values
Sample Period: 1983:1 TO 2013:3

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	1.953887	0.551404	3.543476
EMPLOY_HPT	1.146788	0.113872	10.070860
D_R90	-0.063817	0.006228	-10.246090
MC95	0.049137	0.011075	4.436902
R2006PHOP	-0.022685	0.012337	-1.838704
D_R07	-0.623593	0.022800	-27.350063
PX1SP_LCF	-0.009505	0.043770	-0.217166
lag 1	-0.007843	0.021643	-0.362407
lag 2	-0.000000	0.000010	-0.003198
lag 3	-0.000000	0.000010	-0.002607
lag 4	-0.000000	0.000010	-0.002683

Long-Run Price Elasticities

	PX1SP_LCF
Current	-0.009505
Lag 1	-0.007843
Lag 2	-0.000000
Lag 3	-0.000000
Lag 4	-0.000000
Sum	-0.017349
T-Statistic on Sum	-0.286977

RESPONSE OF THOMAS THRESS
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Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.012190	NA	NA
W1: Lag Pulse	1.005593	NA	NA
W2: Long-Run Step	-1.000000	NA	NA
Delta	0.987230	NA	NA

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1993			0.012190	0.005593
1994	-0.007249	-0.019927	-0.032442	-0.044798
1995	-0.056996	-0.069039	-0.080927	-0.092664
1996	-0.104251	-0.115690	-0.126983	-0.138131
1997	-0.149137	-0.160003	-0.170730	-0.181320
1998	-0.191775	-0.202096	-0.212285	-0.222344
1999	-0.232275	-0.242079	-0.251758	-0.261313
2000	-0.270746	-0.280059	-0.289253	-0.298329
2001	-0.307290	-0.316136	-0.324869	-0.333490
2002	-0.342002	-0.350405	-0.358700	-0.366890
2003	-0.374975	-0.382956	-0.390836	-0.398615
2004	-0.406295	-0.413877	-0.421362	-0.428751
2005	-0.436046	-0.443248	-0.450358	-0.457377
2006	-0.464306	-0.471147	-0.477900	-0.484568
2007	-0.491150	-0.497648	-0.504063	-0.510396
2008	-0.516649	-0.522821	-0.528915	-0.534931
2009	-0.540870	-0.546733	-0.552521	-0.558236
2010	-0.563877	-0.569446	-0.574945	-0.580373
2011	-0.585731	-0.591022	-0.596244	-0.601401
2012	-0.606491	-0.611516	-0.616477	-0.621375
2013	-0.626210	-0.630983	-0.635695	

Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.034385	NA	NA
W1: Lag Pulse	0.263325	NA	NA
W2: Long-Run Step	-0.268286	NA	NA
Delta	0.985229	NA	NA

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2002			0.034385	-0.004961
2003	-0.008851	-0.012683	-0.016458	-0.020178
2004	-0.023843	-0.027454	-0.031011	-0.034516
2005	-0.037969	-0.041371	-0.044723	-0.048026
2006	-0.051279	-0.054485	-0.057643	-0.060754
2007	-0.063820	-0.066840	-0.069816	-0.072747
2008	-0.075636	-0.078481	-0.081285	-0.084047
2009	-0.086769	-0.089450	-0.092092	-0.094694
2010	-0.097259	-0.099785	-0.102274	-0.104726
2011	-0.107142	-0.109522	-0.111868	-0.114178
2012	-0.116454	-0.118697	-0.120907	-0.123084
2013	-0.125229	-0.127342	-0.129424	

RESPONSE OF THOMAS THRESS
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Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.332402	NA	NA
W1: Lag Pulse	1.100227	NA	NA
W2: Long-Run Step	-0.502221	NA	NA
Delta	0.982852	NA	NA

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2007			0.332402	0.598006
2008	0.579139	0.560595	0.542370	0.524457
2009	0.506851	0.489547	0.472540	0.455824
2010	0.439396	0.423248	0.407378	0.391780
2011	0.376449	0.361382	0.346572	0.332017
2012	0.317711	0.303651	0.289831	0.276249
2013	0.262900	0.249779	0.236883	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
JAN15S	-2.469173	0.726754	-3.397537
FEB15S	-0.244789	0.419325	-0.583768
MAR_MAY15S	-1.340206	0.539693	-2.483273
JUN15S	-0.944017	0.407378	-2.317299
JUL15S	-3.121288	1.205482	-2.589244
SEP15S	-1.270833	0.498688	-2.548354
OCT15S	-1.009543	0.721850	-1.398550
NOV15S	-1.717840	0.602035	-2.853391
DEC15S	-0.590128	0.486956	-1.211870
D_FS_Q1	0.044436	0.010064	4.415508

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.092797	-0.007002	-0.007705	-0.078814
1984	0.092847	0.001954	-0.015464	-0.076488
1985	0.090470	0.002468	-0.019116	-0.075380
1986	0.088044	0.007068	-0.022615	-0.074308
1987	0.084793	0.011924	-0.025497	-0.073272
1988	0.080716	0.022255	-0.029502	-0.071310
1989	0.070087	0.028026	-0.030434	-0.070384
1990	0.063534	0.033906	-0.030844	-0.069493
1991	0.056156	0.040041	-0.030636	-0.068640
1992	0.049122	0.048635	-0.028944	-0.067041
1993	0.036086	0.052966	-0.026305	-0.066296
1994	0.030083	0.055448	-0.023625	-0.065588
1995	0.024425	0.057017	-0.020328	-0.064915
1996	0.019110	0.059600	-0.013341	-0.064124
1997	0.010103	0.056244	-0.006728	-0.064448
1998	0.007003	0.054160	-0.000960	-0.065253
1999	0.004839	0.051163	0.005427	-0.066538
2000	0.078798	-0.002229	-0.021847	-0.072738
2001	0.078798	-0.007661	-0.021847	-0.072738
2002	0.078798	-0.007661	-0.021847	-0.072738
2003	0.078798	-0.007661	-0.021847	-0.072738
2004	0.078798	-0.002229	-0.021847	-0.072738
2005	0.078798	-0.007661	-0.021847	-0.072738
2006	0.078798	-0.007661	-0.021847	-0.072738
2007	0.078798	-0.007661	-0.021847	-0.072738
2008	0.123235	-0.002229	-0.021847	-0.072738
2009	0.123235	-0.007661	-0.021847	-0.072738
2010	0.123235	-0.007661	-0.021847	-0.072738
2011	0.123235	-0.007661	-0.021847	-0.072738
2012	0.123235	-0.002229	-0.021847	-0.072738
2013	0.123235	-0.007661	-0.021847	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.025459
Mean Square Error	0.000277
Unadjusted Mean Square Error	
Full Sample	0.000277
Last 5 Yrs	0.000286
Last 4 Yrs	0.000257
Last 3 Yrs	0.000172
Last 2 Yrs	0.000233
Last 1 Yr	0.000211
Durbin-Watson	2.134163
R-Square	0.998321
Adj. R-Square	0.997773
Degrees of Freedom	92

SHAPIRO-FRANCIA TEST FOR NORMALITY OF RESIDUALS

Test Statistic	P-Value
0.993	0.681

AUGMENTED DICKEY FULLER TEST FOR STATIONARITY

	Test Statistic	Critical Value
Dependent Variable	0.437	-3.400
Residuals	-5.765	-1.924

Null hypothesis: Variable contains a unit root

For dependent variable, model is AR(4) with constant and time trend
For residuals, model is AR(4) with no constant, no trend

Critical values are calculated for a 5% significance level from 'Lag Order
by Yin-Wong Cheung and Kon S. Lai, Journal of Business & Economic Statisti

Mechanical Net Trends

Forecast Period

	4 Yrs Ago	3 Yrs Ago	2 Yrs Ago	1 Yr Ago	Last 4 Qtrs
Base 5 Yrs Ago	0.991929	1.005867	0.999624	0.996631	1.000730
Base 4 Yrs Ago		1.020001	1.003494	0.998203	1.002942
Base 3 Yrs Ago			0.987255	0.987479	0.997320
Base 2 Yrs Ago				0.987704	1.002391
Base 1 Yr Ago					1.017296

SHILLER K-SQUARED VALUES

PX1SP_LCF	0.201563

RESPONSE OF THOMAS THRESS
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AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.099321	-0.099638	0.090536	-1.100535
2	-0.128995	-0.140446	0.090909	-1.544908
3	0.090143	0.060998	0.091287	0.668200
4	-0.056461	-0.063908	0.091670	-0.697152
5	-0.046827	-0.041058	0.092057	-0.446006
6	0.072786	0.049653	0.092450	0.537079
7	-0.160806	-0.150301	0.092848	-1.618788
8	-0.051536	-0.067843	0.093250	-0.727531
9	-0.005682	-0.074762	0.093659	-0.798244

Recursive Residuals
(normalized: (Ln(Actual) - Ln(Forecast)) / SE

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.609	-1.279
1988	-0.248	-1.336	-0.418	0.490
1989	-1.198	2.203	0.059	0.050
1990	0.787	2.045	-0.379	0.302
1991	0.990	-1.043	0.019	0.188
1992	-0.750	-0.603	-0.573	0.640
1993	1.569	1.200	0.480	-1.667
1994	-0.607	-0.382	-1.502	0.715
1995	0.268	-0.402	-0.402	-0.731
1996	2.943	1.150	0.213	0.299
1997	0.867	1.357	0.551	-0.699
1998	-1.422	0.022	0.317	0.229
1999	-1.199	0.475	1.107	-0.405
2000	-0.565	0.081	-0.968	-1.469
2001	-1.033	-1.727	2.306	-0.695
2002	-2.803	-0.179	2.041	0.438
2003	-1.462	1.320	-0.137	-0.056
2004	1.381	0.212	-0.989	-0.097
2005	1.823	-0.402	-1.115	-0.393
2006	-0.743	0.432	0.124	-1.156
2007	0.366	-0.514	0.528	0.000
2008	1.618	1.284	0.138	-3.012
2009	0.143	0.992	-0.741	0.513
2010	2.634	-2.131	0.281	-0.837
2011	-0.505	-1.026	0.375	-0.665
2012	-0.573	-1.941	-1.085	0.020
2013	0.377	-0.210	1.989	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Cumulative Sum of One-Quarter-Ahead Residuals

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.609	-1.888
1988	-2.136	-3.471	-3.889	-3.399
1989	-4.597	-2.394	-2.335	-2.285
1990	-1.498	0.547	0.168	0.470
1991	1.459	0.417	0.436	0.624
1992	-0.126	-0.730	-1.303	-0.662
1993	0.907	2.108	2.588	0.921
1994	0.313	-0.068	-1.570	-0.855
1995	-0.588	-0.990	-1.392	-2.122
1996	0.821	1.971	2.184	2.483
1997	3.350	4.706	5.258	4.558
1998	3.136	3.158	3.475	3.704
1999	2.505	2.980	4.087	3.682
2000	3.117	3.197	2.229	0.760
2001	-0.274	-2.000	0.306	-0.390
2002	-3.193	-3.372	-1.331	-0.892
2003	-2.355	-1.035	-1.172	-1.227
2004	0.154	0.366	-0.623	-0.720
2005	1.103	0.701	-0.414	-0.807
2006	-1.550	-1.119	-0.995	-2.151
2007	-1.785	-2.299	-1.771	0.000
2008	-0.153	1.131	1.269	-1.743
2009	-1.599	-0.608	-1.348	-0.835
2010	1.799	-0.332	-0.051	-0.888
2011	-1.393	-2.420	-2.044	-2.710
2012	-3.283	-5.223	-6.308	-6.288
2013	-5.911	-6.121	-4.131	

Normalized CUSUM
CUSUM divided by Confidence Level

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.214	-0.469
1988	-0.434	-0.610	-0.612	-0.488
1989	-0.611	-0.298	-0.274	-0.254
1990	-0.159	0.056	0.016	0.044
1991	0.132	0.037	0.037	0.052
1992	-0.010	-0.057	-0.100	-0.050
1993	0.067	0.151	0.182	0.063
1994	0.021	-0.005	-0.103	-0.055
1995	-0.037	-0.062	-0.085	-0.128
1996	0.049	0.115	0.126	0.142
1997	0.189	0.262	0.289	0.247
1998	0.168	0.167	0.182	0.192
1999	0.128	0.151	0.205	0.183
2000	0.153	0.156	0.108	0.036
2001	-0.013	-0.094	0.014	-0.018
2002	-0.146	-0.153	-0.060	-0.040
2003	-0.104	-0.045	-0.051	-0.053
2004	0.007	0.016	-0.026	-0.030
2005	0.046	0.029	-0.017	-0.033
2006	-0.063	-0.045	-0.040	-0.086
2007	-0.071	-0.090	-0.069	0.000
2008	-0.006	0.043	0.048	-0.066
2009	-0.060	-0.023	-0.050	-0.031
2010	0.066	-0.012	-0.002	-0.032
2011	-0.050	-0.087	-0.073	-0.096
2012	-0.116	-0.184	-0.221	-0.219
2013	-0.205	-0.211	-0.142	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Change in Normalized CUSUM

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.214	-0.255
1988	0.036	-0.177	-0.001	0.124
1989	-0.123	0.313	0.024	0.020
1990	0.095	0.214	-0.039	0.028
1991	0.088	-0.096	0.001	0.015
1992	-0.062	-0.047	-0.043	0.050
1993	0.116	0.085	0.031	-0.119
1994	-0.042	-0.026	-0.098	0.048
1995	0.018	-0.024	-0.024	-0.043
1996	0.177	0.067	0.011	0.015
1997	0.047	0.073	0.027	-0.041
1998	-0.079	-0.001	0.015	0.010
1999	-0.064	0.023	0.054	-0.022
2000	-0.030	0.002	-0.048	-0.071
2001	-0.049	-0.081	0.108	-0.032
2002	-0.128	-0.007	0.093	0.020
2003	-0.064	0.059	-0.006	-0.002
2004	0.060	0.009	-0.042	-0.004
2005	0.076	-0.017	-0.046	-0.016
2006	-0.030	0.018	0.005	-0.046
2007	0.015	-0.020	0.021	0.069
2008	-0.006	0.049	0.005	-0.114
2009	0.006	0.038	-0.027	0.019
2010	0.097	-0.078	0.010	-0.030
2011	-0.018	-0.037	0.014	-0.023
2012	-0.020	-0.068	-0.037	0.002
2013	0.014	-0.006	0.069	

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	-0.026985	-0.001806	-0.009784	-0.016915
1984	-0.011127	0.026760	-0.012518	0.021357
1985	0.020669	0.020249	0.008370	0.001792
1986	0.018313	-0.013084	0.011705	0.001428
1987	0.003979	-0.014614	-0.003815	-0.010072
1988	0.015583	-0.018895	0.009805	0.002995
1989	-0.024311	0.005445	-0.001852	-0.016406
1990	-0.001791	-0.002742	-0.003056	0.003885
1991	0.015461	0.002858	0.032302	0.000264
1992	-0.026369	-0.012818	-0.010349	0.015812
1993	0.002685	-0.001504	-0.000120	-0.011476
1994	-0.004584	-0.001109	-0.013918	0.024720
1995	0.000513	-0.008025	-0.004589	-0.012909
1996	0.029126	0.008055	-0.006721	-0.000540
1997	-0.000194	0.009845	-0.001981	-0.012268
1998	0.001421	0.001428	-0.001483	0.005059
1999	-0.009913	0.013590	0.016367	0.009716
2000	0.001449	0.008233	-0.029025	0.013989
2001	-0.002462	-0.016600	0.026813	0.003679
2002	-0.032138	-0.005506	-0.000005	0.019544
2003	-0.027472	0.004005	-0.009578	0.000509
2004	0.011152	0.004478	-0.019863	0.004145
2005	0.025727	-0.000179	-0.019799	0.001750
2006	0.011108	0.011213	-0.003179	-0.015312
2007	0.007356	-0.006387	0.000097	-0.007291
2008	-0.022976	0.017308	0.022607	-0.028590
2009	-0.013617	0.023470	-0.007785	0.013101
2010	0.037712	-0.017082	0.012346	-0.002736
2011	-0.000566	-0.007654	0.011725	-0.002375
2012	-0.003781	-0.023991	-0.020605	-0.005454
2013	0.002908	-0.005434	0.027840	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

CONTRIBUTIONS TO CHANGE IN
First-Class Single-Piece Letters, Cards, & Flats
VOLUME OVER LAST FIVE YEARS

Volume 5 Years Ago 39194.483

Variable	Percent Change In Variable	Elasticity	Effect of Variable on Volume
Own-Price	2.06%	-0.017	-0.04%
EMPLOY_HPT	-4.90%	1.147	-5.59%
D_R90	0.00%	-0.064	0.00%
MC95	0.00%	0.049	0.00%
R2006PHOP	0.00%	-0.023	0.00%
D_R07	0.00%	-0.624	0.00%
Adult Population			5.63%
Interventions Starting in:			
1993Q3			-10.32%
2002Q3			-4.80%
2007Q3			-26.93%
Seasonality			-0.42%
Other Factors			0.37%
Mechanical Net Trend			1.000730
Base Volume			24359.600
Total Change in Volume			-37.85%

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Mail Category: First-Class Single-Piece Letters, Cards, & Flats
Equation used in R2013-11: Intervention Trends only
Sample Period: 1983:1 TO 2013:3

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	1.555905	0.541063	2.875644
EMPLOY_HPT	1.093120	0.113605	9.622114
D_R90	-0.057480	0.006257	-9.186731
MC95	0.032557	0.010555	3.084669
R2006PHOP	-0.023093	0.012111	-1.906848
D_R07	-0.018625	0.010384	-1.793646
PX1SP_LCF	-0.002625	0.077882	-0.033707
lag 1	-0.154398	0.068922	-2.240173
lag 2	-0.000000	0.000010	-0.000230
lag 3	-0.000000	0.000010	-0.000092
lag 4	-0.000000	0.000010	-0.000156

Long-Run Price Elasticities

	PX1SP_LCF
Current	-0.002625
Lag 1	-0.154398
Lag 2	-0.000000
Lag 3	-0.000000
Lag 4	-0.000000
Sum	-0.157023
T-Statistic on Sum	-2.268402

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.000000	0.000000	0.000000
W1: Lag Pulse	0.000000	0.000000	0.000000
W3: Long-Run Trend	-0.009896	0.000403	-24.54298

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1993			0.000000	-0.009896
1994	-0.019791	-0.029687	-0.039582	-0.049478
1995	-0.059373	-0.069269	-0.079164	-0.089060
1996	-0.098955	-0.108851	-0.118747	-0.128642
1997	-0.138538	-0.148433	-0.158329	-0.168224
1998	-0.178120	-0.188015	-0.197911	-0.207806
1999	-0.217702	-0.227598	-0.237493	-0.247389
2000	-0.257284	-0.267180	-0.277075	-0.286971
2001	-0.296866	-0.306762	-0.316657	-0.326553
2002	-0.336449	-0.346344	-0.356240	-0.366135
2003	-0.376031	-0.385926	-0.395822	-0.405717
2004	-0.415613	-0.425508	-0.435404	-0.445300
2005	-0.455195	-0.465091	-0.474986	-0.484882
2006	-0.494777	-0.504673	-0.514568	-0.524464
2007	-0.534359	-0.544255	-0.554151	-0.564046
2008	-0.573942	-0.583837	-0.593733	-0.603628
2009	-0.613524	-0.623419	-0.633315	-0.643210
2010	-0.653106	-0.663002	-0.672897	-0.682793
2011	-0.692688	-0.702584	-0.712479	-0.722375
2012	-0.732270	-0.742166	-0.752061	-0.761957
2013	-0.771853	-0.781748	-0.791644	

Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.000000	0.000000	0.000000
W1: Lag Pulse	0.000000	0.000000	0.000000
W3: Long-Run Trend	-0.001067	0.000857	-1.244606

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2002			0.000000	-0.001067
2003	-0.002134	-0.003201	-0.004268	-0.005336
2004	-0.006403	-0.007470	-0.008537	-0.009604
2005	-0.010671	-0.011738	-0.012805	-0.013873
2006	-0.014940	-0.016007	-0.017074	-0.018141
2007	-0.019208	-0.020275	-0.021342	-0.022410
2008	-0.023477	-0.024544	-0.025611	-0.026678
2009	-0.027745	-0.028812	-0.029879	-0.030947
2010	-0.032014	-0.033081	-0.034148	-0.035215
2011	-0.036282	-0.037349	-0.038416	-0.039483
2012	-0.040551	-0.041618	-0.042685	-0.043752
2013	-0.044819	-0.045886	-0.046953	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Intervention Analysis

	Coefficient	Std Error	T-Ratio
W0: Initial Pulse	0.000000	0.000000	0.000000
W1: Lag Pulse	0.000000	0.000000	0.000000
W3: Long-Run Trend	-0.012746	0.000676	-18.86244

Intervention Value

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2007			0.000000	-0.012746
2008	-0.025492	-0.038238	-0.050984	-0.063730
2009	-0.076476	-0.089222	-0.101968	-0.114714
2010	-0.127460	-0.140206	-0.152952	-0.165698
2011	-0.178444	-0.191190	-0.203936	-0.216682
2012	-0.229428	-0.242174	-0.254920	-0.267666
2013	-0.280412	-0.293157	-0.305903	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
JAN15S	-2.235875	0.706359	-3.165351
FEB15S	-0.156886	0.409132	-0.383461
MAR_MAY15S	-1.180082	0.524551	-2.249697
JUN15S	-0.809724	0.396196	-2.043745
JUL15S	-2.777276	1.171519	-2.370662
SEP15S	-1.114602	0.484867	-2.298777
OCT15S	-0.877902	0.702076	-1.250437
NOV15S	-1.520284	0.585178	-2.597984
DEC15S	-0.463684	0.473576	-0.979112
D_FS_Q1	0.043691	0.009776	4.469150

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.091960	-0.007119	-0.008693	-0.076943
1984	0.091839	0.001375	-0.015947	-0.074715
1985	0.089273	0.002133	-0.019360	-0.073655
1986	0.086829	0.006578	-0.022631	-0.072632
1987	0.083610	0.011269	-0.025325	-0.071644
1988	0.079616	0.021080	-0.029071	-0.069779
1989	0.069305	0.026814	-0.029943	-0.068900
1990	0.062988	0.032487	-0.030328	-0.068058
1991	0.055897	0.038405	-0.030136	-0.067252
1992	0.049131	0.046619	-0.028560	-0.065748
1993	0.036575	0.051034	-0.026095	-0.065051
1994	0.030784	0.053535	-0.023594	-0.064390
1995	0.025320	0.055182	-0.020515	-0.063765
1996	0.020180	0.057774	-0.013992	-0.063015
1997	0.011400	0.054996	-0.007816	-0.063282
1998	0.008280	0.053226	-0.002428	-0.063976
1999	0.006008	0.050601	0.003537	-0.065098
2000	0.078913	-0.003399	-0.018934	-0.074595
2001	0.078913	-0.008470	-0.018934	-0.074595
2002	0.078913	-0.008470	-0.018934	-0.074595
2003	0.078913	-0.008470	-0.018934	-0.074595
2004	0.078913	-0.003399	-0.018934	-0.074595
2005	0.078913	-0.008470	-0.018934	-0.074595
2006	0.078913	-0.008470	-0.018934	-0.074595
2007	0.078913	-0.008470	-0.018934	-0.074595
2008	0.122604	-0.003399	-0.018934	-0.074595
2009	0.122604	-0.008470	-0.018934	-0.074595
2010	0.122604	-0.008470	-0.018934	-0.074595
2011	0.122604	-0.008470	-0.018934	-0.074595
2012	0.122604	-0.003399	-0.018934	-0.074595
2013	0.122604	-0.008470	-0.018934	

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.026388
Mean Square Error	0.000261
Unadjusted Mean Square Error	
Full Sample	0.000261
Last 5 Yrs	0.000353
Last 4 Yrs	0.000320
Last 3 Yrs	0.000284
Last 2 Yrs	0.000389
Last 1 Yr	0.000484
Durbin-Watson	2.113203
R-Square	0.998260
Adj. R-Square	0.997898
Degrees of Freedom	101

SHAPIRO-FRANCIA TEST FOR NORMALITY OF RESIDUALS

Test Statistic	P-Value
0.995	0.909

AUGMENTED DICKEY FULLER TEST FOR STATIONARITY

	Test Statistic	Critical Value
Dependent Variable	0.437	-3.400
Residuals	-5.645	-1.924

Null hypothesis: Variable contains a unit root

For dependent variable, model is AR(4) with constant and time trend
For residuals, model is AR(4) with no constant, no trend

Critical values are calculated for a 5% significance level from 'Lag Order
by Yin-Wong Cheung and Kon S. Lai, Journal of Business & Economic Statisti

Mechanical Net Trends

Forecast Period

	4 Yrs Ago	3 Yrs Ago	2 Yrs Ago	1 Yr Ago	Last 4 Qtrs
Base 5 Yrs Ago	0.978822	0.998886	0.994567	0.993930	1.001128
Base 4 Yrs Ago		1.019362	1.002535	0.999017	1.006784
Base 3 Yrs Ago			0.985986	0.988998	1.002625
Base 2 Yrs Ago				0.992018	1.011050
Base 1 Yr Ago					1.030447

SHILLER K-SQUARED VALUES

PX1SP_LCF	0.003125

RESPONSE OF THOMAS THRESS
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AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.103733	-0.106607	0.090536	-1.177517
2	-0.207385	-0.229076	0.090909	-2.519840
3	0.139071	0.088254	0.091287	0.966772
4	-0.050510	-0.087390	0.091670	-0.953307
5	-0.091884	-0.064685	0.092057	-0.702654
6	0.079592	0.036739	0.092450	0.397394
7	-0.115894	-0.123410	0.092848	-1.329162
8	-0.132442	-0.140901	0.093250	-1.510998
9	0.030173	-0.078290	0.093659	-0.835908

Recursive Residuals
(normalized: (Ln(Actual) - Ln(Forecast)) / SE

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.609	-1.279
1988	-0.248	-1.336	-0.418	0.490
1989	-1.198	2.203	0.059	0.050
1990	0.787	2.045	-0.379	0.302
1991	0.990	-1.043	0.019	0.188
1992	-0.750	-0.603	-0.573	0.640
1993	1.569	1.200	0.480	-1.657
1994	1.284	0.580	-1.490	0.405
1995	0.067	-0.455	-0.605	-1.044
1996	2.796	1.044	0.040	0.120
1997	0.969	1.409	0.644	-0.680
1998	-1.504	0.016	0.425	0.297
1999	-1.131	0.617	1.407	-0.196
2000	-0.361	0.368	-1.056	-1.002
2001	-0.756	-1.345	2.814	-0.190
2002	-2.351	0.393	2.676	0.910
2003	-1.406	1.332	-0.979	0.096
2004	1.115	-0.185	-1.628	-0.191
2005	1.528	-0.657	-1.568	-0.426
2006	-0.750	0.445	-0.011	-0.928
2007	0.564	-0.133	0.658	-1.483
2008	1.574	1.307	-0.078	-2.604
2009	0.436	1.278	-0.660	0.904
2010	2.873	-1.718	0.460	-0.355
2011	-0.093	-0.513	0.692	-0.061
2012	0.030	-1.116	-0.405	0.968
2013	1.321	0.974	3.020	

RESPONSE OF THOMAS THRESS
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Cumulative Sum of One-Quarter-Ahead Residuals

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.609	-1.888
1988	-2.136	-3.471	-3.889	-3.399
1989	-4.597	-2.394	-2.335	-2.285
1990	-1.498	0.547	0.168	0.470
1991	1.459	0.417	0.436	0.624
1992	-0.126	-0.730	-1.303	-0.662
1993	0.907	2.108	2.588	0.931
1994	2.216	2.795	1.305	1.709
1995	1.776	1.322	0.717	-0.327
1996	2.469	3.513	3.553	3.673
1997	4.642	6.051	6.695	6.016
1998	4.511	4.528	4.953	5.249
1999	4.119	4.736	6.143	5.946
2000	5.586	5.954	4.898	3.896
2001	3.139	1.794	4.608	4.419
2002	2.067	2.460	5.136	6.046
2003	4.640	5.972	4.993	5.089
2004	6.204	6.019	4.390	4.200
2005	5.728	5.071	3.503	3.077
2006	2.327	2.772	2.762	1.834
2007	2.399	2.265	2.923	1.440
2008	3.014	4.321	4.243	1.639
2009	2.075	3.353	2.693	3.597
2010	6.470	4.751	5.211	4.857
2011	4.763	4.251	4.943	4.882
2012	4.912	3.796	3.391	4.359
2013	5.680	6.654	9.674	

Normalized CUSUM
CUSUM divided by Confidence Level

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.214	-0.469
1988	-0.434	-0.610	-0.612	-0.488
1989	-0.611	-0.298	-0.274	-0.254
1990	-0.159	0.056	0.016	0.044
1991	0.132	0.037	0.037	0.052
1992	-0.010	-0.057	-0.100	-0.050
1993	0.067	0.151	0.182	0.064
1994	0.150	0.186	0.085	0.110
1995	0.112	0.082	0.044	-0.020
1996	0.147	0.206	0.205	0.210
1997	0.261	0.336	0.368	0.326
1998	0.242	0.240	0.260	0.272
1999	0.211	0.240	0.309	0.296
2000	0.275	0.290	0.237	0.186
2001	0.149	0.084	0.215	0.204
2002	0.095	0.112	0.231	0.270
2003	0.206	0.262	0.218	0.220
2004	0.266	0.257	0.186	0.176
2005	0.239	0.210	0.144	0.126
2006	0.094	0.112	0.111	0.073
2007	0.095	0.089	0.114	0.056
2008	0.116	0.166	0.162	0.062
2009	0.078	0.126	0.100	0.133
2010	0.238	0.174	0.190	0.176
2011	0.172	0.153	0.176	0.173
2012	0.174	0.133	0.119	0.152
2013	0.197	0.229	0.332	

RESPONSE OF THOMAS THRESS
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Change in Normalized CUSUM

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1987			-0.214	-0.255
1988	0.036	-0.177	-0.001	0.124
1989	-0.123	0.313	0.024	0.020
1990	0.095	0.214	-0.039	0.028
1991	0.088	-0.096	0.001	0.015
1992	-0.062	-0.047	-0.043	0.050
1993	0.116	0.085	0.031	-0.118
1994	0.086	0.036	-0.101	0.025
1995	0.002	-0.030	-0.038	-0.064
1996	0.166	0.059	-0.000	0.004
1997	0.052	0.075	0.031	-0.041
1998	-0.084	-0.002	0.020	0.013
1999	-0.061	0.029	0.068	-0.013
2000	-0.021	0.015	-0.054	-0.050
2001	-0.038	-0.065	0.130	-0.011
2002	-0.109	0.017	0.120	0.039
2003	-0.064	0.057	-0.045	0.002
2004	0.046	-0.010	-0.071	-0.009
2005	0.063	-0.029	-0.066	-0.018
2006	-0.031	0.017	-0.001	-0.038
2007	0.022	-0.006	0.025	-0.058
2008	0.060	0.049	-0.004	-0.100
2009	0.016	0.047	-0.025	0.033
2010	0.105	-0.064	0.016	-0.014
2011	-0.004	-0.019	0.024	-0.003
2012	0.000	-0.040	-0.015	0.033
2013	0.045	0.033	0.103	

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	-0.022519	0.001365	-0.005478	-0.016800
1984	-0.009920	0.026197	-0.014436	0.015917
1985	0.016735	0.014148	0.005224	0.003121
1986	0.021560	-0.011713	0.012223	0.001177
1987	0.005596	-0.014165	-0.005254	-0.014544
1988	0.012253	-0.023475	0.002481	0.007391
1989	-0.014669	0.013844	0.003740	-0.013953
1990	0.001218	-0.000220	-0.004437	-0.000031
1991	0.011001	-0.006080	0.025057	0.003910
1992	-0.022564	-0.008232	-0.008892	0.015150
1993	0.001706	-0.001203	0.009470	-0.000833
1994	0.003119	0.005515	-0.012341	0.021821
1995	-0.005370	-0.014531	-0.006330	-0.015906
1996	0.023922	0.003614	-0.014196	-0.001204
1997	0.002539	0.013221	-0.000087	-0.014012
1998	-0.001209	-0.000045	-0.002652	0.000379
1999	-0.015040	0.009706	0.015457	0.005818
2000	-0.001458	0.005945	-0.036069	0.011020
2001	-0.007639	-0.020719	0.021391	0.002794
2002	-0.032084	-0.002715	0.034475	0.020166
2003	-0.019823	0.011223	-0.008333	0.005387
2004	0.012867	0.007197	-0.022605	0.004109
2005	0.023386	-0.002138	-0.025880	-0.000860
2006	0.005892	0.005892	-0.004632	-0.012788
2007	0.008203	-0.002010	0.013869	0.006909
2008	-0.010850	0.024924	0.020878	-0.030007
2009	-0.019384	0.019648	-0.016681	0.009403
2010	0.033439	-0.022185	0.002634	-0.008293
2011	-0.006993	-0.013380	0.001728	-0.006788
2012	-0.007659	-0.024798	-0.021361	0.001203
2013	0.011447	0.006929	0.041920	

RESPONSE OF THOMAS THRESS
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CONTRIBUTIONS TO CHANGE IN
First-Class Single-Piece Letters, Cards, & Flats
VOLUME OVER LAST FIVE YEARS

Volume 5 Years Ago 39194.483

Variable	Percent Change In Variable	Elasticity	Effect of Variable on Volume
Own-Price	1.92%	-0.157	-0.30%
EMPLOY_HPT	-4.90%	1.093	-5.34%
D_R90	0.00%	-0.057	0.00%
MC95	0.00%	0.033	0.00%
R2006PHOP	0.00%	-0.023	0.00%
D_R07	0.00%	-0.019	0.00%
Adult Population			5.63%
Interventions Starting in:			
1993Q3			-17.95%
2002Q3			-2.11%
2007Q3			-22.50%
Seasonality			-0.40%
Other Factors			0.57%
Mechanical Net Trend			1.001128
Base Volume			24359.600
Total Change in Volume			-37.85%

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

6. On page 12 of the July 1 Narrative, it states that "it is not sufficient to merely plug linear time trends into all of one's econometric equations and project these trends to continue unabated throughout the forecast period." Rather, "it is important to evaluate every demand equation individually and determine the appropriate trend specification for each equation, if any."

a. Please explain in detail how this was done for the Single-Piece First Class Letter Mail demand equation(s), and for workshared First-Class Letter Mail equation(s).

b. For demand equations where there are multiple trends, for example the three Internet trends in the Single-Piece First-Class Letter Mail equation (and the trends in the workshared First-Class Letter Mail equation), please state the reason(s) for including the data past the end of the first Single-Piece trend in the estimation of that trend, and for including the data past the end of the second Single-Piece trend in the estimation of that trend, since the data used in the estimation of third and final trend to date by definition can only be for the length of that trend to date?

RESPONSE

a. Efforts to understand the underlying trends in First-Class Mail and the factors driving those trends have been ongoing for years, if not decades. This has resulted in a number of econometric experiments and changes to econometric specifications over time in an ongoing effort to better understand the trends affecting First-Class Mail volume.

Beginning in R2001-1, attempts were made to explicitly model the relationship between the Internet and First-Class Mail volumes through the inclusion of various measures of Internet usage in the demand equations for First-Class single-piece and workshared mail. In recent years, the rate of growth of these Internet usage variables has slowed down or stopped, as Internet usage has achieved relatively full penetration among U.S. households. Diversion of First-Class Mail volume has not seen a similar slowdown. Hence, it became necessary to re-investigate the relationship between the Internet and First-Class Mail volume and explore alternative means of modeling this relationship econometrically.

These investigations included several alternate specifications, including various trend specifications (linear, logistic, exponential) starting at various times. The most promising of these areas of investigation proved to be the non-linear intervention analysis techniques described in the July 1 Narrative. Non-linear interventions were investigated in the First-Class Mail demand equations which allowed for possible step changes as well as trend changes. Based on these experiments, the basic econometric framework used in the present case, which incorporates linear trends starting at various times, as deemed appropriate, was adopted.

The specific starting dates of these trends are chosen in an effort to optimize the regression diagnostics of the econometric demand equations. As a general rule, the regression diagnostic

of most importance is mean-squared error. Efforts are made not only to minimize full-sample mean-squared errors, but careful attention is also paid to minimizing mean-squared errors over more recent time periods (e.g., mean-squared errors over the last five years of the regression period).

As part of our regular econometric output, recursive residuals are presented. These present (normalized) one-quarter-ahead forecast errors obtained from estimating our equations over sub-samples of our full sample periods. These recursive residuals can be very helpful in identifying anomalous quarters and/or break-points in historical trends. Analyzing these recursive residuals plays a key role in identifying possible starting dates for new diversion trends as well as refining the choice of starting date for pre-existing trends.

Experiments and refinements of this nature are ongoing in the Postal Service's continuing and never-ending quest to develop the most accurate and reliable econometric demand equations possible.

b. In developing econometric demand equations to be used to make volume forecasts, there is a tradeoff that must be made between using sufficient data to get reliable econometric estimates versus relying on older data that may no longer reflect current relationships between mail volume and other factors. Allowing the estimated trend coefficient of a demand equation to change over time is one way to help address this tradeoff. Including multiple trend regimes within a single demand equation like this provides additional data for estimating the relationship between mail volume and other factors, such as price or the macro-economy, while recognizing and accounting for changes in diversion rates and underlying trends over the longer time period.

For the present case, relying on these older time periods and including them within a single demand equation has the added benefit of helping us to better understand the factors which affected the demand for mail prior to the Great Recession. Understanding the demand for mail volume prior to the Great Recession as well as the demand for mail volume now, in the wake of the Great Recession, is critical in attempting to fully understand and quantify the full impact of the Great Recession on mail volumes (and revenues and contributions).

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

7. Please refer to page 15 of the July 1 Narrative. Please explain why the starting dates for the three trends in diversion of Single-Piece First-Class Letter Mail demand equations in the January 22, 2013 demand equations all begin in the fourth quarter of a year, whereas for other products such as workshared First-Class Letter Mail they do not?

RESPONSE

The First-Class single-piece letters and cards demand equation filed with the Postal Regulatory Commission on January 22, 2013, included two time trends which began in 2004Q2 and 2007Q4.

Please see my responses to questions 5.a-b and 6.a. above.

RESPONSE OF THOMAS THRESS
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 2

8. On page 17 of the July 1 Narrative it states: "Historical trends are simply projected to continue forward at the same rate." Please explain why you perform such an extrapolation.

RESPONSE

Historical trends are projected to continue forward at the same rate because I have no reason to assume that they will not. If evidence were available to suggest that these trends may change in the future, I would revisit this issue. The exact specifications for First-Class single-piece and workshared mail used in this case were chosen on the basis of the careful consideration and analysis of probably hundreds of econometric alternatives over the years. See, for example, my response to your question 6 above.